THE BULLETIN

Vol. IV No. 2

Hydro-Electric Power Commission of Ontario

AUGUST 1918

EUGENIA FALLS

THE

BULLETIN

PUBLISHED ON THE FIRST DAY
OF EACH MONTH, BY THE

Hydro-Electric Power
Commission of Ontario

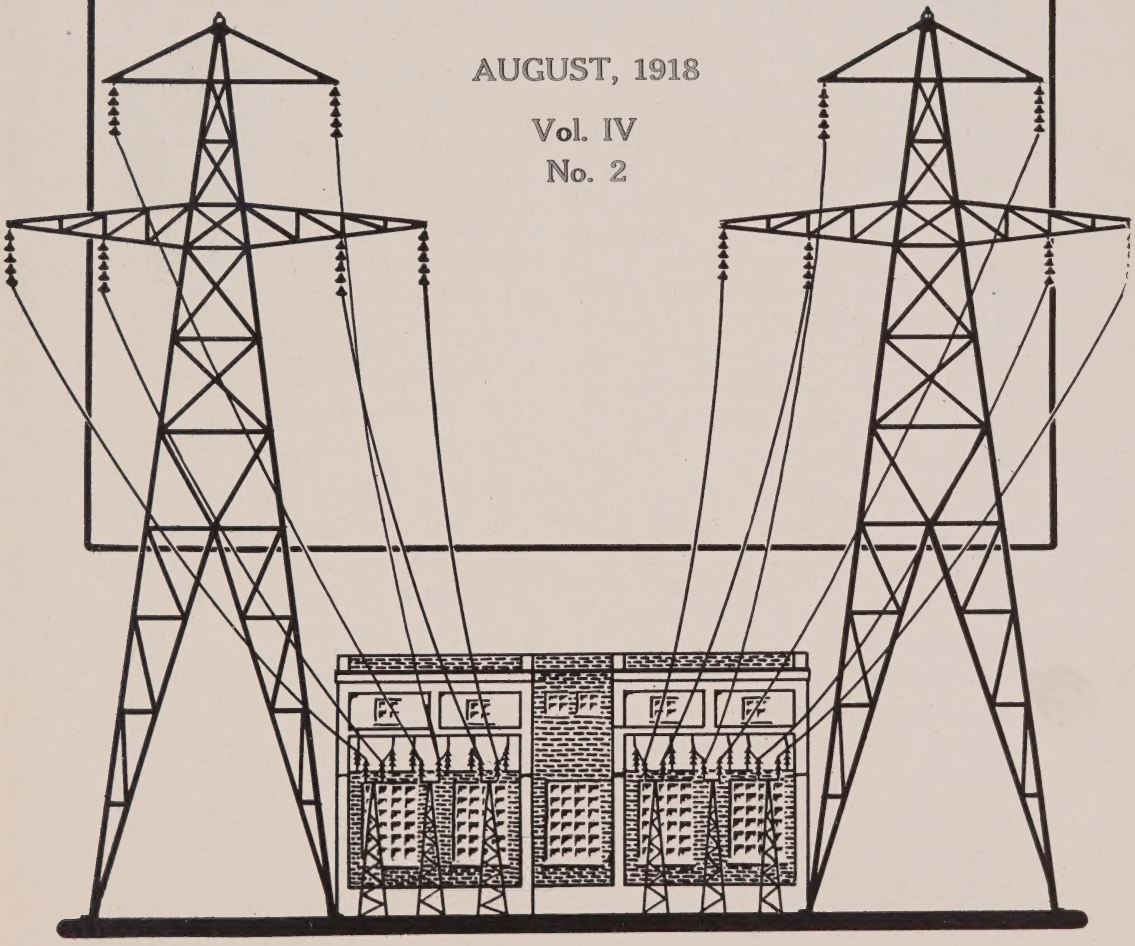
ADMINISTRATION BUILDING
190 UNIVERSITY AVE.
TORONTO

SUBSCRIPTION PRICE:
ONE DOLLAR PER YEAR

CONTENTS

AUGUST, 1918

Vol. IV
No. 2



EDITORIAL

Complete House Wiring

A CAMPAIGN for complete house wiring, as outlined in the Commercial Section of this number of THE BULLETIN will undoubtedly be a big help to every Hydro town seeking an increased load.

Big drives such as this, which are national and even international in their scope, accomplish a great deal.

Before we can build appliance sales appreciably, we must make it easy for the consumer to use these appliances. To do so, we must get the consumer to realize the advantage of a number of appliance outlets, both wall and baseboard types, throughout his home. The average Hydro consumer does not give much thought to this, but he does realize how annoying it is to be obliged to remove a lamp from a socket every time he wants to use his toaster, grill or iron, and Mrs. Housewife fully realizes the unsightliness of attachment cords dangling from numerous fixtures throughout the house.

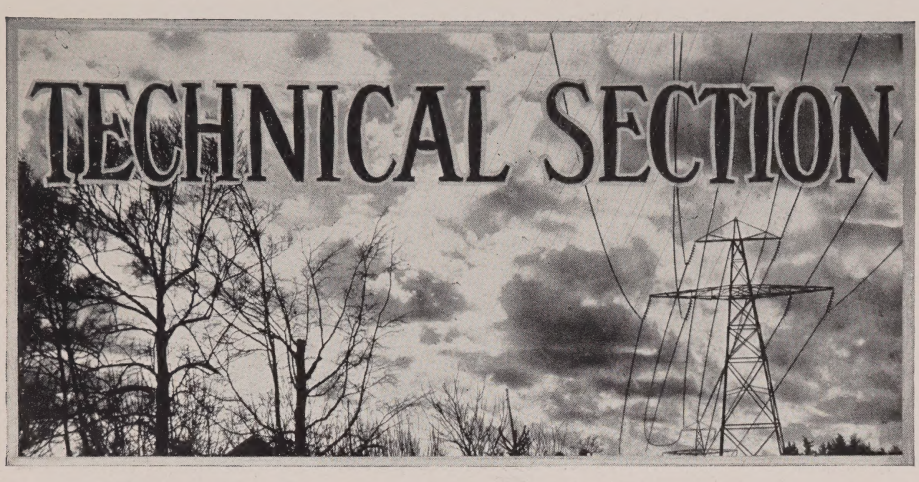
It is undoubtedly true that the volume of business in appliances would be greatly increased if it were more easy for consumers to use them, and a campaign such as this will bring this need before a great multitude of current users.

Then, too, people who are not using electricity at all will see this advertised and their thoughts will be directed to the advantages of an electrically wired house.

From this publicity house wiring and wiring extensions, leading as they do to increased appliance sales and additional load revenue, cannot fail to result.

From a survey of this movement, it is evident that any town hooks up its selling efforts with a campaign of this character will not fail to derive a great deal of benefit from it.

Beside identifying a local Commission with a large, up-to-date, progressive movement of this nature, any efforts put forth for carrying on this much needed educational work will undoubtedly be amply rewarded.



Effect of Artificial Light on Plant Growth

THE *General Electric Review* for March publishes an interesting article by J. L. R. Hayden and C. P. Steinmetz, giving the results of scientific experiments for the purpose of investigating the effect of artificial light on plant growth, and we submit herewith a short summary of the article.

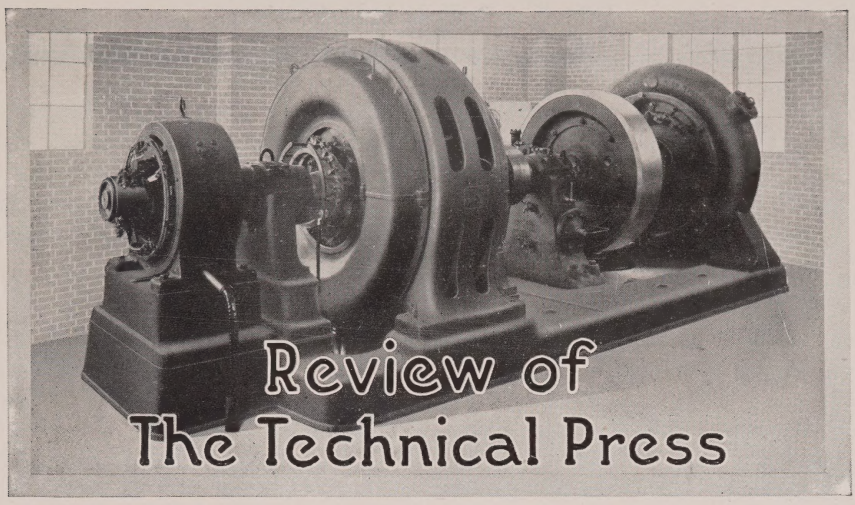
Gas-Filled Lamps were used as a source of light, previous experiments having shown that the quality of light from this lamp is very efficient in promoting plant growth. Beans were used in the experiment owing to their natural rapid growth and the short time necessary to observe results. A piece of ground 5 ft. x 9 ft. with good black soil was illuminated by five 500-watt gas-filled lamps hanging in a row 36 inches above the ground and 17 inches from each other. The lamps were provided with flood lighting reflectors directing the light downward on to the bed. The power consumed was 2.5 k.w. A check test was made using the same kind of beans (Henderson's Dwarf Wax) by planting some of them in the same kind of soil but remote from the rays of artificial light. The lamps were kept burning continuously twenty-four hours per day in addition to the daylight. The check beans were supplied with daylight only. After forty-four days, three of the lamps were turned off leaving only two burning during the last twenty-nine days with a power consumption of 1 k.w. Twenty of the seventy-three days were cloudy and represented about the average climatic conditions in Schenectady, New York, during the winter months when the experiment was conducted. The temperature of the green-house wherein the experiments were conducted averaged 18 to 20 degrees C. but above the experimental bed, due to the heat from the lamps, the temperature averaged about 2 degrees C. higher,

Records were kept of the average height and other conditions of the plants, with measurements and photographs taken at frequent intervals. From the charts and photographs it would appear that the growth was greatly stimulated by the use of artificial light.

The results and conclusions are at least interesting. The power consumption was at the rate of 55 watts per square foot. The intensity of the illumination was about 700 lumens per square foot. From the plot experimented on, three quarts of beans were gathered, which at the winter prices represents about 90 cents in revenue. The total power consumed was 2.5 kw. during twenty-four hours for forty-four days and 1 kw. for twenty-nine days, or a total of 3340 kw. hr., which at the power rate of 5 cents per kw. hr. would cost $167. Assuming that the power is kept on only eighteen hours per day during off-peak periods, and a rate of 2 cents per kw. hr. secured, the power cost would still be $42, which the authors quite agree is out of proportion to market value of string beans. The authors neglected to include in their costs the important item of lamp renewals and capital charges, but the conclusion reached at this point is that relatively cheap products such as beans could not be economically raised with artificial illumination. It has been pointed out that such speeding up of the growth and flowering of the plants by intense artificial illumination may be economical and advantageous when used on products having a higher market value at a definite time or period, for instance Easter lilies, Poinsettias, etc., these plants being entirely seasonal and losing their value afterwards. If a period of cloudy weather interferes with the flowering of such plants beyond the time when they are most in demand, their value may be saved by speeding their development by intense artificial illumination for some days. A considerable expense for power would then be warranted. To further show the possible economies, the authors find that intense illumination for one week at eighteen hours per day would accelerate the development of plants by about five days at a cost of slightly over 2 cents per pot at 5 cents per kw. hr.

The article proceeds to point out that intense artificial illumination to accelerate plant growth in green-houses may become economical if the electric current is generated at low cost by the steam heating plant necessary in the usual green-house. The exhaust steam could be used for heating in the usual manner and current produced at a minimum cost.

The authors conclude that by intense artificial illumination of the magniture of 700 lumens per sq. ft. the rapidity of growth and development of plants can be approximately doubled. With electricity generated as a by-product of the heating plant, the use of artificial illumination may be justified. With purchased power, the scheme outlined would not be economically justified except for temporary use with plants having a market value at a definite time.



The Bugbear of Electrical Merchandising is "Inadequately Wired Houses."

THE Society for Electrical Development has started out on its advertising campaign preparatory to the Service Outlet drive it will make in September next. It would seem that this year the Society has struck at the very root of the reason why more domestic appliances are not used in the home and that, by concentrating its energies on making it possible to use these appliances, it will get much bigger results, eventually, than it could possibly do by urging the merits of equipment which, in the home of the average householder, is practically useless. By this campaign the Society recognizes the force of the argument that the weak point in electrical merchandising lies in that overwhelming majority of poorly wired houses for which, in the main, we have the indifferent attitude of the architect to thank. The proper time to wire a house for any electric service, and to instal the necessary outlets is when the house is being erected, but these are essentials in modern home-building that are conspicuously absent from the plans and specifications of ninety-nine out of every hundred buildings. It is to be hoped the forthcoming campaign will, in part, bring this fact home to the architect and the householder alike. In that case it will have served a double purpose. . . . . the Society for Electrical Development's Campaign for a broader, better use of electrical household helps strikes a popular chord. It does not matter so much as to how the appeal is made, or what form the educational matter takes, so long as it is built on sane, sober, serious lines, such propaganda cannot fail to produce fruitful returns.

A feature of such a campaign is that it automatically adapts itself to any wiring or appliance campaign the contractor, central station or merchandiser may have scheduled for that same period. It will stimulate wiring orders as quickly as it will stimulate appliance sales, even though the drive is concentrated on additional outlets, plugs and receptables.—*The Electrical News.* July 15, 1918.

Off the President's Bat

"HOW do you ever get the time to write *The Line?*"

That is what most of my acquaintances ask me.

And that is what I have been promising readers of *The Line* to bat out.

So here goes.

"Batter up!"

I not only write *The Line*, but I also contribute material for the bi-monthly publication known as "*Vim*," published by our Company, for the exclusive benefit of the sales force and which contains 48 pages of reading matter; I also contribute considerable to The Houghton *Pay Envelope*, another of the Houghton monthly publications, issued by the working force of the Company, and to *Houghton's Herald* for War Workers, a publication issued on an average of once a month, whose purpose is the discrimination of technical and semi-technical information that may be useful to those engaged in munitions making industries. I am also a contributor to the *Houghton Industrial Digest*, a new member of the Houghton Family of publications, whose purpose is to present a resumé of facts and ideas pertaining to the industries in the contemporaneous trade and technical press.

In addition to this, I personally write many of the Houghton advertisements which appear in a dozen or more technical publications; write considerable editorial matter for general publication; speak in public before various organizations, make a dozen or two after-dinner speeches each season, and preside as toastmaster at most of the functions of the Oil Trade Association of Philadelphia.

I am President of E. F. Houghton & Co., but that is merely a title, for my contract with the Company is not as President, but as General Manager, and in the latter position I give more or less supervision to all of the departments, giving individual supervision to the advertising department.

I belong to the Philadelphia, Whitemarsh Valley, Lansdowne and Spring Lake Country clubs, and manage to play some little golf on each of these respective links.

I have a country place at Point Pleasant, on the Manasquan River, in New Jersey. A small catboat and a twenty-four-foot motorboat lie at my dock, and I manage to give both some use, while at Bay Head, on the Barnegat Bay, three miles from Point Pleasant, I have the motor yacht "Franeda," upon which I find time to have lots of recreation in season.

I also bowl and play billiards, and get over to the Manufacturers' Club with the boys a night or so each week.

I take the stump at every election, attend a lecture or so every month, and am somewhat of a "first nighter" at the theatre, both in Philadelphia and in New York.

I play the piano—with my feet; listen to the Victrola; cut up with my Grand-Kiddies; make social calls; take automobile trips; am fifty-five years of age; have myself examined thoroughly by a physician every six months, and partially every sixty days; am five feet eight inches in heigth, and weigh one hundred and ninety pounds.

In the winter months, when there is no golf, I take physical culture, in addition to exercising twenty minutes every morning before I bath.

All of these things I do, and more, the mention of which I omit because I fear what I have mentioned may lead the reader to think I am boasting.

I give this intimate outline of my activities so that the reader may realise that I not only have time to write *The Line*, but that writing *The Line* occupies only a very small portion of my time.

In fact, I am free to say, of all my duties and recreations, that which comes the easiest and which I enjoy most is writing this 'near editorial' stuff.

I never can decide whether the editing of *The Line* is a work I love or a recreation I enjoy.

I would not have the reader think I merely dabble in these various other things that occupy my time. When I play, I play hard; when I work, I work hard. I put all that's in me into it, whether it's work or play.

With perhaps the single exception of golf, where one hundred strokes seems to be about my average upon a fairly difficult course, I'm by no means a dub at any sport.

I have sailed in races; can navigate my yacht; have driven an automobile on the track as high as eighty-five miles an hour, and for years played annually in pocket billiard tournaments.

I accept less than five per cent. of the invitations I receive to make addresses, and get a good hand on the stump when I do speak.

I should say that I size up in my various vocations about as I do as an editor,—far from a top-notcher, but not so rotten—if you can get that idea into your head.

Furthermore, I cannot accomodate myself to Edison's theory of the human system not requiring more than four or five hour's sleep, for I sleep on the average about seven and one-half hours in every

twenty-four,—and feel punk if I sleep less.

I feel safe in saying that I am always busy and yet always have sufficient time to attend to my various duties without neglecting anything.

And this is how I do it :

I never do anything I can get anyone else to do for me.

My wife says that she believes that I would engage folks to play for me, if I could enjoy the play by so doing.

And perhaps I would.

I study the economy of time, and count each moment as a miser counts his money.

Let me take the very simple matter of going to and returning from business.

Believing that the time so spent was largely waste, I moved from the suburbs many years ago to the nearest desirable residence locality to my place of business.

But even then it required about twenty-five minutes to get to and from business each day, owing to the necessity of changing cars.

So I bought a horse and drove each way in ten minutes, saving thirty minutes per day.

Then I applied the thirty minutes in such a way as it earned the keep of the horse, plus.

The automobile replaced the horse, but as the trolley had replaced the horse cars, the saving was still about the same.

As business developed I found that I was called to the centre of the city daily and I was also compelled to go into the centre of the city almost every evening.

The household help became serious and was detaining me at the house frequently, so I moved to a hotel in the centre of the city, attending to my business in the centre of the city either on my way to business, or on my way home, as conditions required. Inasmuch, however, as it required about fifty minutes to go from my place of business to the centre of the city, and forty minutes from my residence to the same destination, it can be seen that by reducing the trips to the centre of the city from two to one per day I saved about one hundred minutes per day, not counting the twenty minutes it formerly required to go from my residence to business and return. In other words two hours per day were saved.

Instead of relying upon the uncertainties of one automobile and the delays of a chauffeur, I have three cars and three chauffeurs. One is constantly garaged within a block of the hotel, and is at the door awaiting me every morning.

My personal bills are paid promptly, but I never pay one. I never make out and seldom sign a personal check; I was never in the bank in which I keep my personal account, and doubt if I could be identified there. I give not the slightest attention to my personal attire, more than to visit the tailor's twice a year, after consultation with my valet as to my requirements. I seldom go shopping, but make my wants known and have more competent persons do the buying. I

never use the telephone unless I am compelled to, and then I speak so briefly that some say I "bark."

I never open my mail or read any of my letters except those my secretary tells me I should read. Generally he gives me briefly the purport of each. I never waste time watching the score board, either of the ball game, the stock market or my own business. I never see the orders, or the checks when they come in, nor bother my head about business being good or bad until the totals are given me at the close of each month. I never trouble myself about the finances, beyond looking at a brief report from the Treasurer each month setting forth how much we owe, how much is coming due and how it is to be paid.

Each department has a competent head and I hold each of these executives strictly responsible for his department, asking merely for reports covering generalities. I seldom apply myself to departmental details, and if I want the details analyzed, I have someone do it for me and give me the results.

Our departments are directed by committees, of which committees the department heads are chairmen in most instances.

These committees confer on an average of once a week, and now and then I drop into a meeting when there is something up for consideration on which I think I can help. In most instances I have my secretary read the committee minutes and call my attention to anything of which I should be informed.

When I start to concentrate upon any particular problem, I forbid all interruptions. No one can get to me by phone or otherwise if I am engaged upon an important matter.

Interruptions are the most unnecessary waste of time a busy person can have, aside from considering them as nerve destroyers and sappers of the mentality. They derail the train of thought, and grey matter is squandered in putting the train back on its track at the point of interruption.

I have an office in my apartments where I work day, night or Sunday, as necessity demands or inclination prompts.

I never tackle difficult work when I am brain-fagged, and never permit my recreation to pilfer my business time.

If I play golf to-morrow afternoon I will come home refreshed, and make up for the four hours at golf in the daytime by working four hours at night.

I am not carrying an overload, or working myself to death, in any sense of these phrases. On the contrary, I positively refuse to worry about anything. Thus, I avoid the cause of the premature breakdown of many busy men.

I have no fear of death or poverty.

When my time comes, I'll go uncomplainingly, satisfied that the world owes me nothing and that I do not know of a man who had had more out of life, or enjoyed

himself more while here than I. And I'll go—

"Like one that wraps the drapery of his couch
About him and lies down to pleasant dreams."

If, when I go I am impoverished or broke, I will have the satisfaction of knowing that I played fair and for high stakes and was no piker while I sat in the Game of Life.

In motoring I always drive cautiously, though I much prefer to exceed the speed limit than to amble along at the speed caution dictates. While my mind is centered upon getting to my destination—and getting there quickly—that is a cultivated state of mind and not a result of overwrought nerve tension.

I have never bought or held a share of stock outside of my own Company in my life and I never succumb to the allurements constantly held out to me to enter other business enterprises, believing that I know my own business and that I don't know other people's business.

In other words, I never play the other fellow's game.

My mind and time are therefore always free to be devoted to perfecting the business I understand.

I never speculate, believing that, while I am as competent to speculate as any man, the cost of diverting my mind from my own business would more than offset any possible gain from speculation.

I have no desire to amass a great fortune, as I feel that it would be rather a nuisance to have a surplus beyond that which I need to live comfortably and unostentatiously and which I can use in the further development of my own business.

I detest the exactions of a pretentious residence, its retinue of servants and necessary formalities.

I prefer the simple life.

That's where I get my time, and lots of it.

I have in mind a friend I visited the other day, one of those chaps who is always too busy to do anything.

He arose in the morning, spent fifteen minutes in making the golf engagement the conversation being about almost everything but golf ; five minutes to have his shoes shined; stopped at the barber's for twenty minutes; took an hour to read his mail; another half hour to reprimand a department superintendent, then went to the bank and borrowed some money, which consumed almost the remainder of the business day, until it was almost too late to go to the golf club. When we started home after our game he found his car had a flat tire and it took twenty more valuable minutes to repair it. Then things went wrong at dinner, and we were late for the theatre, and so on, until, had I been compelled to stay there another day I would have had nervous prostration, not from going so fast, but because I could not accustom myself to such a wicked waste of time.

This same chap boasts that he repairs his own automobile; keeps a private set of books and can tell exactly what he spends and how

he spends it. He even orders the coal, flour and groceries for the house and does the marketing.

He is clerking for himself, and doesn't know it.

Here is a chap who is capable of producing $50,000 per year and is hiring himself out to himself as a mere clerk and doing things he should have done for him for $10. per week.

He thinks I am extravagant.

I think that putting a $50,000 per year man at $10 per week work is the worst form of extravagance.

What do you think?

Folks say I am foolish to pay the high salaries necessary to obtain such efficient executives as I have gathered around me.

I say they are foolish for not doing so.

Folks claim that I am extravagant for having a hundred or so clerks in the office. I claim that they are extravagant because they have so few.

But so long as they succeed in their way and I succeed in mine, neither of us will be convinced that the other is right.

They are always complaining about not having "any time to do anything," while I—well, I have ample time to bat out this stuff that you read in *The Line*, and a lot more—and to work hard and to recreate and enjoy myself more than most men.—*The Houghton Line*.

The Ten Commandments of Salesmanship

By DR. FRANK CRANE

1. Be Agreeable

Other things being equal, I go to the store where the clerks try to please me. I buy clothing, typewriters, and automobiles of the man who acts as though he likes me. Exert yourself to make a pleasing impression on me, please. I appreciate it. Hence, dress well. Untidy clothes mean you don't care what I think of your appearance. But don't dress too well. That gives you an air of showing off. Dress just right. If you don't know how, find out. Cultivate a pleasing voice. Learn to converse entertainingly. Cut out all mannerisms. Give me the impression of a gentleman, honest, square, anxious to please and good natured.

2. Know Your Goods

Don't let there be any questions I can ask you relative to the manufacture, history, distribution, or uses of what you have to sell that you cannot answer. If you're selling typewriters, know all about all the kinds. If you're selling rubber, find out all about where all sorts of rubber come from, and all points about them. Put in your spare time making yourself an encyclopedia of information about your goods.

3. Don't Argue

Go with me in your talk, not against me. Lead, don't oppose. Don't show me where I am wrong, dodge a square issue and show me where you are right. Don't anta-

gonize. Arguments as a rule result in irritation, not conviction.

4. Make Things Plain

Don't use any word I don't understand. You can explain the most complicated matter to a washerwoman if you know your subject perfectly and practice using simple language. Don't air your technical knowledge and try to impress me. I want to be flattered not awed.

5. Tell The Truth

Don't lie, or exaggerate, or mislead, or conceal. Let me feel that you are sincere, and mean every word you say, and that every statement you make is of par value. If you represent goods that need lying about, directly or indirectly, quit. There are plenty of articles that are straight and all right. Sell them.

6. Be Dependable

Even in small things create the impression that whatever you promise is as much to be depended upon as your signed note. If you make an appointment at 3 p.m. Tuesday, be there at 2.45 or telegraph. If I order goods of a certain grade, let them be found to be exactly of that grade when I receive them.

7. Remember Names and Faces

If you have not a natural gift for this, acquire it. Get a little book and set down every day the names of those you have met, with their characteristics. Practice this until you become expert. No man likes to be forgotten or to have you ask his name.

8. Don't Be Egotistic

Eliminate the pronoun I as much as possible from your vocabulary. Talk about me, not yourself. Don't tickle yourself, tickle me; I'm the one you want to win.

9. Think Success

Success begins in the mind. Why think fifty cents when it is just as easy to think fifty dollars? Tell success stories, not incidents of failure and hard luck. Radiate prosperity. Feel prosperous. It's catching. Keep your chin up.

10. Be Human

The reason you are hired to sell goods is that you are a human being. Otherwise your employer would have sent a catalogue. So be a human being, likable, engaging, full of human electricity. For I patronize as a rule the salesman I like.—*McClary's Wireless.*

Elimination of Unnecessary Shock

Winnipeg, Man., June 12th, 1918.
Editor, *Electrical News :*

While numerous bodies have from time to time promulgated rules for protection of property against hazardous methods of electric installation, it is only recently that any attempt has been made to grapple with the question of this danger to persons from such causes. Noteworthy efforts are, however, discernible in certain directions, such

as those of the Hydro-Electric Power Commission rules, which are a step in advance, and more especially the National Electric Safety Code, issued by the Bureau of Standards, Washington.

As illustrating one little point in above connection I enclose copy of a notice recently sent out by us to all manufacturers of electric ranges. There is, to my mind, no valid reason why women and children should be exposed to risk of shock in such ways as are spoken of, when they can be so easily protected. It is, I think, up to electrical engineers and plant superintendents to bring pressure to bear on this problem and insist upon the elimination of these needless hazards.

Yours truly, F. A. CAMBRIDGE,
City Electrician.

Notice to Electric Range Manufacturers

While we have on several occasions drawn your attention to the necessity of placing the individual switches on electric hot plates and ranges on one of the "outer" wires of the three-wire feeds, and not on the neutral, we still find considerable carelessness in the observance of this requirement.

Illustrating the necessity for the above precaution, I would point to two complaints recently received.

(*a*) Woman while wiping off top of range with a damp cloth complained of receiving shocks, although all element switches were "of," at the time.

(b) Woman picking up kettle and with other hand touching range body got shock although all element switches were "off." In this case there would appear to have been some substance accidentally bridging the kettle bottom and the element wire.

Both above cases were fortunately in districts where the neutrals are grounded, hence, the maximum voltage to ground would be limited, but it is evident that with ungrounded neutrals shocks of much greater intensity are possible. A fatal accident due to such a cause would not only be regrettable, but would materially check the growing popularity of electric cooking.

May I count on your thorough cooperation in eliminating above risk?

A Ray of Hope

Electrically heated clothing has been invented for the purpose of keeping aviators warm at great altitudes.—*News item.*

COME, noble electrician,
And come, my tailor true;
Make me a suit of clothes to wear
When winter chills me through.

Electrify the trousers,
Electrify the vest,
Electrify the coat and shirt,
And likewise all the rest.

Although I'm not an airman,
I'll need such clothes, I fear,
If coal-less Mondays come again
When autumn skies grow drear.

So have my garments heated
To sixty-eight degrees;
And then, despite what Garfield does,
I'll never have to freeze.

Kenneth L. Roberts.—Life.

London Opens New Store and Office Building

New Home of the London Public Utilities Commission

ON Wednesday, July 10th, Sir William Hearst, Premier of Ontario, who was accompanied by Lady Hearst, in the presence of Sir James Lougheed, Government Leader in the Canadian Senate, Sir Adam Beck, Chairman of the Hydro-Electric Power Commission of Ontario and Lady Beck, Mayor C. A. Somerville, Mr. Phillip Pocock, Chairman, Public Utilities Commission, Mr. F. A. Gaby, Chief Engineer of the Hydro-Electric Power Commission of Ontario and other distinguished guests, and before a splendid gathering, including representatives from a great many of the municipalities of Western Ontario, opened the new home of the London Public Utilities Commission.

The weather was delightful, and, owing to the perfect arrangements, reflecting great credit on Manager

Buchanan, the ceremony was most enjoyable.

Following a short address of welcome to Sir William Hearst by Mayor Somerville and the Premier's reply, Chairman Pocock referred briefly to the success of the Hydro in London, citing figures in connection with the operation of the London Public Utilities to prove the growth and excellent financial condition which necessitated and justified the steps that have been taken to provide proper accommodation for the department.

Premier Hearst, after a speech including an appreciation of the results attained by the Hydro at London, formally opened the new building with a golden key.

A thorough inspection of the building and equipment followed.

Later in the afternoon the Nurses' Home, donated by Sir Adam and Lady Beck, was presented to the London Health Association by Sir Adam Beck and accepted on behalf of the Association by Major Gordon Ingram. This incident is best told in the following sentence from Sir Adam's speech, "I desire to present to the Directors of the London Health Association on behalf of my wife and myself, this building for a Nurses' residence, as an expression of gratitude to God for the complete restoration of our only child Marion Auria Beck, who was threatened with a serious illness."

The visitors were then invited to inspect the new Sanitorium, which is perhaps the best example in the country of the possibilities in this Province for the universal application of electricity. Practically every service in connection with the Sanitorium is performed by this modern Genii, and it is not necessary to spend time and energy in polishing an old lamp to start things, as in the days of Aladdin. The modern control switch is a decided improvement over the old method, both as regards cleanliness and convenience.

An excellent dinner was then served at Port Stanley on the shore of Lake Erie, twenty-five miles distant, the intervening distance being absolutely annihilated by the same Genii, who transported the party by means of a beautifully appointed electric special on the London & Port Stanley Railway. The guests were unanimous in the opinion that their trip was a most delightful one, and as a sample of the convenience and comfort in travelling, which may be extended generally throughout the Province by the development of the Hydro Radials, it was a splendid endorsement.

Utility managers and municipal engineers throughout the Province will be greatly interested in the splendid new building which the London Public Utilities Commission has just completed. It is fireproof, modern in every respect and unique in that it was designed by the staff and paid for out of the surplus revenue, and that special features have been introduced as a result of careful study and planning by the very capable staff, every member of which has apparently given his best thought and enthusiasm to designing and carrying out of the work.

The architecture isn't just a type that one can name offhand on the spur of the moment, but it is in a measure an approximation of the classical school. It is constructed throughout of reinforced concrete, faced with Indiana limestone from a place called Bedford, somewhere in the Hoosier State. The gray-buff color is quiet and harmonious, pacifistical in its color impressions, and doesn't jar now with the old city hall's appearance beside it, and won't jar in after years when some day a resplendent city hall is built on the old site across the street. It is located on a main corner that in time is bound to supplant Richmond and Dundas as the shopping center of the city.

It is 50 by 90 feet in its ground dimensions, three stories in height and with a full-story basement underneath. It was erected entirely by day labor supplied by the department, but working under the direction of Messrs. Samuel Willis and John Putherbough, supervising contractors. Complete, with its furnishings, it will have cost $115,000, and the workmanship is admittedly first-class throughout. Had the construction been contracted for outright, it would have cost easily 10 per cent. more. So whether or not one likes the designs that the Italian sculptors carved by hand in the gray limestone facades of the main corner, one has got to admit that it is a standing monument to the plain, straight business efficiency of one department of the

This night photograph of the Main Window is particularly interesting. A string of nitrogen lamps is concealed in a recess of the window arch under prism glass backed by a blue reflecting surface producing a perfect daylight effect

General Office, Rotunda, and Appliance Sales Counter. There is not an exposed light in the building—the light distribution is ideal and a model to prospective lighting customers

City of London, with no reflection necessarily intended on any other department of the City of London.

It is well-lighted and well-ventilated and every window, upstairs and down, is wide-paned with heavy plate glass throughout. One enters the main floor through substantial-appearing, but artistic outside doors of sheet bronze to find one's self confronted by the coat-of-arms of the city inlaid in true colors in the Italian marble mosaic of the flooring. This downstairs office entrance, at the corner of the building, leaves free sufficient space for a show window, 35 feet wide and running the remaining width of the building. The main counter is of steel construction, with marble facing, Italian pavanazzo slabs, with Canadian Laurentian setting and trimmings. The counter rails are of solid walnut.

The whole trim of the building is of steel; door frames, windows, sashes, picture mold, chair rail and base—all are of hollow steel, grained in Circassian walnut, so closely resembling wood that an experienced woodworker, who called at the new building yesterday, made several serious guesses as to what kind of wood it was. The walls of the ground floor office are in stucco finish. The building is heated by forced hot water and the radiators on the ground floor are neatly arranged in recesses and covered by bronze grills. The hot water

supply for the lavatories is electrically heated, and provision is made for installing equipment for electric heating of the entire building when power conditions shall make such an installation an economical move.

The ventilating of the basement and all lavatories is by a system of forced ventilation, operated by a Sirocco blower. The plumbing fixtures are of solid porcelain type.

Just inside the entrance is the telephone exchange and information desk. All public utilities of the city, including the Board of Education offices, which occupy the third floor of the building, and all the other city hall offices in the old building, adjacent to the utilities building, will be connected with the Bell central through the utilities switchboard. Civic departments can communicate with each other in this way without going through the Bell central, not only effecting a saving in time, but allowing at a minimum expense a telephone whereever it is needed. The Hydro substations, as well as the offices in the city hall and utilities building will be reached through this private exchange in the utilities building.

Variety as well as the highest efficiency in utility has been aimed at in the installing of electric fixtures in the new building, and there are many novelties to be observed. Since the Utilities department is engaged in the sale of electric

Model Dining Room for demonstrating Table Appliances, etc. A Model Kitchen is also provided completely equipped electrically

Photo of the basement Demonstrating Show Room taken entirely by artificial light. The principal source being the ground glass windows in the false wall at the right behind which are concealed nitrogen lamps with reflectors directed on a sky blue wall from which the light is reflected through the windows. The result in diffusion and quality is a marvellous example of daylight lighting

power for lighting, one can readily admit the good business sagacity back of this wide variety. If one observes and is pleased with a new type of electric fixture in the Utilities building, what is more natural than that he should inquire from the Utilities building salesroom as to its cost and merits? And if the Utilities department quotes him the best price prevailing, as it ought to be able to do, he is going to buy it from the Utilities department, isn't he?

On every floor of the building there is a steel vault for the safekeeping of records, books and valuable goods, and on every floor one finds fire lines for emergency use. There is also a stationary vacuum cleaner in the basement, with outlets on each floor.

A pipe-chase running straight up through the building carries and renders accessible all telephones and electric light wires and heating pipes, so that when changes are required to be made there need be no tearing up of floors or tearing down or cutting through of walls and partitions. On the upper floors and landings are to be found neat and attractive-appearing and entirely sanitary terazzo flooring. Its two strong points of merit are that it looks clean and is easily kept clean. The main floor, however, is of marble mosaic. Window lighting in the big show window is from lights concealed in the arch

above the window and through prism glass.

The ceiling fixtures of the main floor are of the semi-indirect type, with reflectors inside the bowls to prevent shadows from the hangers.

In the basement is a large airy showroom, with artificial sunlight streaming through ample window space extending on one side of the room. The close imitation of sunlight is produced by electric lights reflected on a wall tinted sky-blue to produce a daylight color. Here are shown electric pumps, electric washers, rollers and other laundry and household machinery.

Adjacent to the showroom is a public restroom for ladies. Back of the showroom is a stockroom and a workshop, and adjacent to the boiler-room, at the back, is a freight hoist for bringing goods in and taking them out of the showroom and stockroom. All glass partitions throughout the building are of heavy wired glass, adding still more to the fireproof qualities of the building. All heavier partitions are of gypsum blocks, and this interior construction, coupled with the reinforced steel concrete of the main walls, renders the building practically invulnerable to fire.

The work of wiring and installing all electric and plumbing fixtures was done by the Utilities Commission's own staff of foremen and mechanics, and is in itself a big advertisement for the excellence and efficiency of their work. All designing and planning was the work of the commission's own draughtsmen.

The show cases in the showroom and other parts of the building are of the finest workmanship, in walnut, and are all lighted with the "lin-o-lite" illuminating system.

he drafting-room on the second floor is large and roomy, and equipped with indirect lighting fixtures, avoiding all possibility of shadows. The hollow steel trimmings with Circassian walnut finish throughout the building, render it dustproof, the next step in progress after achieving the acme of satisfaction in lighting and ventilation

The board room is an exception to the other parts of the building in that here one finds solid mahogany woodwork, paneling and furniture. A feature of the dining-room, where cooking demonstrations will be held to popularize electrical cooking, is a beautiful built-in buffet in yellow oak finish. The woodwork, all in quarter-cut oak, displays some of the most artistic cabinet work to be found in the city. The dining-room is brilliantly lighted from fixtures of the candelabra type. There is in the kitchen adjoining, an electric ventilating fan, an electric dishwasher, an electric refrigerator, which makes artificial ice in convenient sized cubes for table use, and an electric range, which every housewife will envy.

The office furniture in the board room and general manager's office is in mahogany and mahogany finish of an artistic brown shade. Desks are of solid mahogany, with flush ends, designed to avoid dust collection. Over an electric mantel is an electric clock, which is operated in exact uniformity with other electric clocks on other floors, so that

to the fraction of a second the same time prevails in all departments and parts of the building.

All things considered, the Utilities building is one to which Londoners can point with justifiable pride, and it is a credit not only to the foresight and efficient business management of the Utilities Commission and department, but individually to every workman who worked upon it and every firm whose products are combined in its construction and furnishing.

The Tenth Annual Report

By R. C. McCOLLUM

VOLUME II of the Tenth Annual Report of the Hydro-Electric Power Commission is now being distributed.

This volume is usually known as the "Municipal Section" as, with the exception of the first 22 pages, in which the financial operation of the Commission is reprinted from Volume 1, it is devoted entirely to statistics compiled from the records kept in the local books of the municipalities, and for this reason it is of particular interest to local commissioners, managers, superintendents and secretaries.

For some years this data was reprinted in pamphlet form from the Annual Reports, but as the number of municipalities increased, this pamphlet grew in size from 24 pages in 1913 until it merited the dignity of being issued as a separate volume, and it now contains 168 pages.

In compiling these statistics the aim has been to cover every phase of municipal operation, and to set forth the figures so clearly that they would be understood by anyone taking the trouble to look through the volume.

In accordance with the Power Commission Act and the Public Utilities Act, separate accounts of the Electric Utility are kept in every Hydro municipality so that no confusion is caused by attempting to pick out figures from a general municipal report. A separate balance sheet prepared in the same form as for a commercial undertaking has been made for each municipality, for the current year, with the comparative figures for the year before, from which local plant growth can be seen at a glance. The municipalities are arranged in order of size, to permit of convenient comparisons between places of approximately the same size.

To show the effect on the municipalities collectively, these balance sheets have been consolidated on page 26 and the plant investment, debenture debt and surplus in the 143 municipalities operating with transmitted power in 1917 are shown in total for the past five years. The reserves and surplus in this short time, covering largely the construc-

tion period, already amount to nearly six million dollars, or 33 per cent. of the total liabilities, and the percentage of net debt to total assets has in this period dropped from 88 per cent. to 75.5 per cent. A careful study of this report will enable anyone to combat the claims that were formerly made by opponents of Hydro—that financial ruin was certain to follow in the wake of this enterprise.

The detailed revenue and expense reports follow, the municipalities being arranged in the same order, and the operation of each place being shown from the inception of the service. The growth in commercial revenue year by year is readily apparent. In most municipalities, the annual surplus has not increased in the same percentage as the revenue, due to the radical decreases in rates to consumers which have been ordered from time to time, the aim being to keep the service at as near cost as conservative operation would permit, after making ample provision for deferred maintenance and depreciation.

These reports in abbreviated form for 1917, appear on pages 68 to 73 and are totalled, together with the number of consumers, classified, and horsepower taken in December, 1917. It will be noted that a gross operating loss occurred in but 7 of the 143 municipalities, and in only two was the loss large enough to justify comment. As explained in the footnote on page 69, the loss at Brockville was due to the high cost of coal for steam plant operation, the Commission being in position to furnish only a small amount of hydro-electric power. The loss at Durham shown on page 71 was due to delay in securing equipment to operate a large cement plant, the machinery being tied up on the railroads for several months.

The operating reports have been further consolidated as of one municipality for the past five years on page 25. In considering these reports it must be remembered that the sinking fund or debenture principal payments are treated as expense and charged to revenue, so that there has been no burden on the non-user and no tax levy of any kind except for the cost of the street lighting.

On pages 152 to 157 will be found very complete data on street lighting, including the installation in each municipality, the cost per lamp, total cost per year, and the average cost per capita. Where an unusually high cost appears, an examination will generally find an ornamental or underground installation put in on petition of the ratepayers.

Tables showing the cost of power to the municipalities, and the schedules of rates to consumers for domestic light, commercial light and power appear on pages 158 to 168, the municipalities being listed in alphabetical order for convenient reference. These tables show not only the rates in force in 1917 but the suggested rates for 1918, which had not been confirmed at the time the report was prepared.

By far the most interesting table in the report is Statement D on pages 134 to 151. In this report the average monthly kilowatt-hour consumption per consumer has been worked out for the domestic and commercial light users in each municipality, from the inception of Hydro service, with the average monthly bill and average net cost per kilowatt-hour. The increase in consumption and decrease in monthly bill and cost per kilowatt-hour constitute a remarkable showing, and explain the universal enthusiasm for and loyalty to the Hydro system on the part of the 170,900 individual consumers. The active interest of the latter as a rule in confined to the monthly bills which they pay. They may know little or nothing of the prosperous condition of the utilities in which they are part owners, but without their loyal support and competent non-partisan co-operation on the part of local commissions and managers with the Provincial Commission, the phenomenal success of this huge undertaking would have been impossible.

The operations in the municipalities in the Central Ontario and Nipissing Systems are not included in this report, as these systems are not municipally owned or operated.

Electric Club of London

Northern Electric Company, Ltd.
362 Richmond Street,
London, Ont.,
May 29, 1918.

Editor, *The Bulletin*,

It may interest your readers to know that an organization has been formed in this City known as "The Electric Club of London."

The object of this club is for the mutual assistance and education of its members along technical and commercial lines, standardization of methods and electrical development.

Membership in the Association is open to all electrical contractors electrical manufacturers, central stations and electrical jobbers and dealers doing business in the City of London, and also to the local inspection department of the Hydro-Electric Power Commission. The officers and members of the club are as follows :

President: B. W. Wilcox, Benson-Wilcox Electrical Co.; Vice-Pres: L. R. Folley, Commercial Electric Co.; Sec.-Treas: A. T. Taylor, Western Ontario Electric Co.; B. L. Baulch, Northern Electric Co.; Thos. Benson, Benson-Wilcox Electric Co.; W. R. Bowley; E. V. Buchanan, General Manager, London Public Utilities Commission; E. L. Campbell, Western Ontario Electric Co.; F. R. Dark; Frank Gray, People's Electric Co.; J. C. Ingram; W. B. Legate, Inspection Department, H.E.P.C.; W. H. Morgan, Canadian General Electric Co.; E. C. Morkin, Stewart & Morkin; J. H. Pollock; W. E. Rider, Inspection Department, H.E.P.C.; B. E. R. Thomas, Inspection Department, H.E.P.C.; J. Winegarden, People's Electric Co.; Wm. Stewart, Stewart & Morkin.

Yours very truly, B. L. BAULCH

Who's Who in Hydro?

V. S. McINTYRE, Manager of the Kitchener Light Commissioners, was born in Conestogo, Ontario, November 5, 1881. He was educated at Berlin, Ontario, now Kitchener, in the public and collegiate schools.

V. S. McIntyre

In 1898 he entered the employ of the Berlin Gas Company, which operated the gas and electric plants, under Mr. Breithaupt, C.E., who also had charge of the Berlin & Waterloo Street Railway Company. In 1903, the city purchased the gas and electric plants from the Berlin Gas Company, and Mr. McIntyre was made Superintendent of the Berlin & Waterloo Street Railway.

In 1904, the Bridgeport & Northern Street Railway was completed, and Mr. McIntyre was given charge of the operation of this line also, in connection with the Berlin & Waterloo Street Railway. On May 1, 1907, the city purchased the Berlin & Waterloo Street Railway, and the management of this railway for the city was delegated to Mr. McIntyre.

Mr. McIntyre was in 1912 appointed manager of the Hydro-Electric, Gas & Street Railway Departments for the Light Commissioners.

He was married in 1905 to Hazel Springer, and has two sons.

NEWS FROM THE FRONT

THE Editor is in receipt of a letter from Sapper J. H. Corkill, formerly of the Comsion's staff. Sapper Corkill says that he receives and reads THE BULLETIN regularly, but that his copy of the May number was several weeks overdue, as he was transferred to a different unit, and THE BULLETIN travelled over a goodly portion of France before it was finally placed in his hands.

The following is an extract from Sapper Corkill's letter: "The duties of this Unit are to maintain communication within the Divisional Area. My duties are keeping overland routes in working order, which at times is "some job," for Fritz don't seem to respect either linemen or lines, but like every job we have our quiet as well as busy times."

Sapper Corkill's new address is as follows: No. 505,224, 3d Canadian Div. Signal Company, B.E.F., France.

By J. F. S. MADDEN

THE big September drive announced by the Society for Electrical Development, which will extend from coast to coast throughout the United States will have for its slogan "*Save Food, Fuel, Time and Money—BY WIRE.*" The greatest obstacle to the universal extension of the benefits, which follow the application of electricity generally in the home, is the lack of adequate house wiring, with provision for convenient outlets. The result aimed at is adequate house wiring. A tremendous amount of work throughout the country is ready for the wiring contractor, overhauling old wiring and providing convenient outlets and capacity for the use of the home comforts and conveniences, which are no longer luxuries, but necessities. The electrical manufacturer, sales organizations, central stations and wiring contractors and the public themselves should unanimously support this movement, which will do much to elevate our standard of civilization.

It is to be expected that the success attending this fall campaing will make the previous "Shows" put on by our Allies (such as *Prosperity Week, Electrical Week, House Wiring Campaigns*, etc., so ably planned by the Society for Electrical Development) look like mere trench raids.

Already, far behind the lines, the plans for the new drive are being developed to the smallest detail. The first step has been well taken in selecting the objective, as it is now most universally recognized that the practice of the maxims of economy is vital to the welfare of all the Allies. The appeal to save by wire should, therefore, be well received.

It seems assured that, when the time comes, the electrical merchandisers of the United States will go "Over the Top" with an enthusiasm that will be irresistible.

It is not necessary to call the attention of municipal engineers and utility managers to the desirability of synchronizing our efforts where possible with movements of the kind, as much may be gained from

the effective national advertising incident to such a campaign, which circulates so widely in Canada.

The motive selected for the campaign in contemplation is so in accord with the propaganda for the ultilization and conservation of our natural resources, so essential to the economic welfare of the country, that it should appeal strongly as an effective slogan for a special sales campaign, which will be a real national service.

We would appreciate very much if towns comtemplating special sales for September notify us, as we will gladly assist them as far as lies in our power.

We believe that a subscription to *Electrical Merchandising*, published by the McGraw-Hill Company, New York, is an excellent investment for the utility manager desirous of improving his sales facilities and merchandising methods.

The report of the Committee on Light and Power Sales of the Canadian Electrical Association read at the recent Convention in Ottawa and published in the *Electrical News* is an excellent survey of the field of possibilities for increasing the sale of power for all purposes and incidentally the sale of appliances and devices of every sort, which make possible the utilization of electrical energy. In concluding the report it is pointed out that the service rendered to the country by the central station industry is of tremendous importance in aiding the production of munitions, in advancing the industries of the country, in lightening labor in the home, saving fuel, transportation, man power and in other ways assisting the successful economic and social up building of the nation.

The Canadian Hotpoint Electric Heating Company, Ltd., have just issued a new price list—effective July 22d, 1918. The advanced prices are made necessary by increased costs. If further advances becomes necessary the company states they will have to be put into effect without notice.

In many parts of the Province definite plans have been already adopted for the solution of the "Housing Problem." Municipal engineers should, where possible, call attention to the desirability of having the house wiring plans include, provision for convenient outlets to permit of the proper application of electricity in these homes. The local municipal electrical engineer is perhaps the best qualified to determine what is adequate for the class of houses contemplated, and their advice will doubtless be much appreciated by the architects or contractors preparing the plans.

Catchy Cards Help Sales

CONSERVATION by means of the electric range formed the keynote of a Canadian window display in which some very well composed cards were a feature. Of course the range itself was the centre of attraction, and occupied the middle foreground of the window. The oven door was open and disclosed a papier mache roast. Attached to the door was a card, "Save One Pound of Meat Shrinkage on Each Oven Roast by Using Electricity." On the wall was a large card, "Costs Less to Put an Electric Range in Your House than a Coal Range—No Chimney, No Stove Pipes, Ash Barrel, Coal Scuttle nor Coal Bin—What a Relief to the Busy Housewife." At the base of the stove was a third sign, "No Comparison, Electric Cooking *vs.* Coal—No Dust, No Heat, No Circulation of Air Passing Through the Oven to Dry Your Meat." Down in front, on billows of white silk were shown little nickel-plated foot warmers and portable electric heaters.

Another Canadian firm believes in the efficacy of the catchy card as a stimulant to sales. A recent display of theirs featured the vacuum cleaner. The window was arranged in three broad, shallow, steps, covered with white Turkish toweling, In the center, at the top, lay a vacuum cleaner, and at the bottom a coil of hose. Attached to the cleaner was a card. "Choose for Yourself—20 minutes with the Suction Cleaner or two hours' drudgery by old-fashioned methods." Other catchy cards scattered about suggested, "Don't work all day—twenty minutes with the suction cleaner, and the rest of the day is yours." "The whole house is not merely swept, but cleaned in twenty minutes with a vacuum cleaner," "Cleaner than a broom, and easier," "The vacuum cleaner is not a luxury nor an extravagance, but a necessity in every modern house." Down in front was the wax figure of a creeping baby, a cardboard cut out could be substituted, with the card, "Baby can play around on vacuum cleaned carpets and rugs without danger from germs.'

Electricity the Nation's Conservator

MANY articles on conservation have appeared in the press during the last several months and while space does not permit of reviewing many of these articles, we have been sent a copy of a very excellent address delivered by Mr. George A. Hughes, President of the Hughes Electric Heating Company before the Minnesota Electrical Association.

Among many general statements as to the great importance of fuel and of electrical energy, most of which apply to Ontario conditions as well as to the United States, we note the following:

In the United States during 1916 some 30,000,000 of cars of coal were transported. This coal tonnage consumes 30 per cent. of the energies of the carriers, which indeed is a very large proportion for simply carrying fuel from the mines to the consumers. Coal cars tie up an immense amount of capital. They are useful for little else than carrying coal; require an immense amount of space on side tracks and cause the consumption of great quantities of fuel for haulage. Coal cars permit of little, if any, return hauling and are usually brought back to the mines over hundreds of miles as empties, helping to block traffic, tie up equipment, and consume the time of railroad men.

The greatest waste in the use of coal appears to be in the home and coal cooking-stoves are said to be woefully inefficient as a means of converting the latent energy contained in the coal into useful heat. It is said that only a small fraction of the useful heat in the coal is used for cooking purposes—only about 2 per cent. being usefully employed.

It is conservatively estimated that the average family of five consumes for cooking only about 800 pounds of coal monthly or nearly five tons annually. To supply such a family with ample cooking current, the central stations require 262.5 pounds of coal per month or only slightly more than 1½ tons per year, practically one-third as much fuel as would be required by the usual kitchen coal-stove. By means of electric cooking there might be saved to the country over three tons of coal per family per year for cooking purposes only.

It is said that the Society for Electrical Developments estimates that 9,000,000 domestic coal ranges in the United States consume 90,000,000 tons of coal per year for all kitchen purposes. If current for cooking were supplied from central stations, the United States would save about 27,000,000 tons of coal yearly. Adding to this the saving effected by cooking current generated by water power, the housewives of America would be relieved of the necessity of handling some 45,000,000 tons of coal yearly and carrying away nearly 10,000,000 tons of ashes.

The article proceeds to point out that by utilizing water power a great saving is effected in the fuel consumption necessary, to say nothing of utilizing resources which at present are going to waste.

The article further points out the great saving of time and work in the household effected by the use of electric power for performing many of the common domestic duties such as cooking, heating, washing, ironing, etc. In thinking of conservation, we are inclined to neglect the important item of human energy conservation made possible by the use of electrical devises. Much of the advancement made by women during recent years has been due to releasing them from many of the monotonous household tasks which formerly occupied their entire time. Mr. Hughes ends his able address by recommending that we "*Conserve by the use of Electricity.*"

HYDRO MUNICIPALITIES

NIAGARA SYSTEM

25 Cycles

	Pop.
Acton	1,735
Ailsa Craig	586
Ayr	800
Baden	710
Beachville	503
Blenheim	1,424
Bolton	727
Bothwell	703
Brampton	4,041
Brantford	25,420
Breslau	500
Brigden	400
Burford	700
Burgessville	300
Caledonia	1,217
Chatham	12,863
Clinton	2,177
Comber	800
Dashwood	350
Delaware	350
Dorchester	400
Dresden	1,521
Drumbo	400
Dublin	218
Dundas	4,652
Dutton	870
Elmire	2,270
Elora	1,115
Embro	483
Etobicoke Township	5,711
Exeter	1,572
Fergus	1,776
Forest	1,495
Galt	11,852
Georgetown	1,905
Goderich	4,655
Grantham Township	3,271
Granton	300
Guelph	16,735
Hagersville	1,105
Hamilton	100,461
Harriston	1,404
Hensall	749
Hespeler	2,740
Highgate	500
Ingersoll	5,176
Kitchener	19,266
Lambeth	350
Listowel	2,326
London	58,055
Lucan	662
Lynden	662
Milton	2,072
Milverton	893
Mimico	1,976
Mitchell	1,687
Mount Brydges	500
New Hamburg	1,543
New Toronto	1,186
Niagara Falls	11,147
Norwich	1,189
Oil Springs	599
Otterville	500
Palmerston	1,843
Paris	4,370
Petrolia	3,891
Plattsville	550
Point Edward	899
Port Credit	1,046
Port Dalhousie	1,318
Port Stanley	849
Preston	4,643
Princeton	600
Ridgetown	2,326
Rockwood	650
Rodney	655
Sandwich	3,077
Sarnia	11,676
Seaforth	1,964
Simcoe	4,061
Springfield	442
St Catharines	17,880
St. George	600
St. Jacobs	400
St. Mary's	3,958
St. Thomas	17,174
Stamford Township	3,418
Stratford	17,081
Strathroy	2,998
Streetsville	539
Tavistock	1,009
Thamesford	504
Thamesville	769
Thorndale	250
Tilbury	1,740
Tillsonburg	3,084
Toronto	463,705
Toronto Township	4,875
Vaughan Township	4,187
Walkerville	5,096
Wallaceburg	4,107
Waterdown	785
Waterford	1,133
Waterloo	4,956
Waterloo Township	6,693
Watford	1,221
Welland	7,243
West Lorne	724
Wellesley	583
Weston	2,156
Windsor	24,162
Woodbridge	639
Woodstock	10,084
Wyoming	544
Zurich	450
Total	993,862

SEVERN SYSTEM

60 Cycles

	Pop.
Barrie	6,453
Camp Borden	.....
Coldwater	579
Collingwood	7,610
Creemore	585
Elmvale	775
Midland	6,258
Orillia	7,448
Penetang	3,928
Port McNichol	500
Stayner	972
Victoria Harbor	1,477
Waubaushene	600
Total	37,185

WASDELL'S SYSTEM

60 Cycles

Beaverton	1,015
Brechin	215
Cannington	903
Sunderland	570
Woodville	388
Total	3,091

ST. LAWRENCE SYSTEM

60 Cycles

Brockville	9,428
Chesterville	854
Prescott	2,740
Williamsburg	100
Winchester	1,065
Total	14,187

EUGENIA SYSTEM

60 Cycles

	Pop.
Alton	700
Artemesia Township	...
Arthur	1,041
Chatsworth	374
Chesley	1,975
Dundalk	721
Durham	1,600
Elmwood	500
Flesherton	428
Grand Valley	644
Hanover	3,221
Holstein	285
Horning's Mills	350
Markdale	989
Mount Forest	1,941
Orangeville	2,493
Owen Sound	11,910
Shelburne	1,115
Tara	590
Total	30,877

OTTAWA SYSTEM

60 Cycles

Ottawa	100,163

PORT ARTHUR SYSTEM

60 Cycles

Port Arthur	14,307

MUSKOKA SYSTEM

60 Cycles

Gravenhurst	1,702
Huntsville	2,395
Total	4,097

CENTRAL ONTARIO SYSTEM

60 Cycles

Belleville	12,277
Bowmanville	3,655
Brighton	1,337
Cobourg	4,712
Colborne	1,012
Deseronto	2,221
Kingston	21,325
Lindsay	7,481
Madoc	1,179
Millbrook	835
Napanee	2,926
Newburgh	486
Newcastle	611
Omemee	482
Orono	700
Oshawa	8,240
Peterboro	20,426
Port Hope	4,649
Stirling	732
Trenton	5,000
Tweed	1,364
Whitby	2,864
Total	104,514

NIPISSING SYSTEM

60 Cycles

Callander	650
Nipissing	400
North Bay	9,855
Powassan	575
Total	11,480

RIDEAU SYSTEM

60 Cycles

Perth	3,478
Smith's Falls	6,021
Total	9,499

THE aim of the Bulletin is to provide municipalities with a source of information regarding the activities of the Commission; to provide a medium through which matters of common interest may be discussed, and to promote a spirit of co-operation between Hydro Municipalities.